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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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SUITE 700

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EXAMINER

SEDIGHIAN, REZA

ART UNIT

PAPER NUMBER

2613

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/723,437

Applicant(s)

MIURA ET AL.

Examiner

M. R. Sedighian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 5-10 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. This communication is responsive to applicant's 5/10/07 amendments and remarks. The amendments have been entered. Claims 1-11 are now pending.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 5, and 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Poti et al. (US Patent No: 7,039,270 B2).

Regarding claims 1, 9, and 11, Poti teaches a wavelength allocation method of signal light for use when allocating signal lights of two or more waves on wavelength grids (col. 1, lines 35-45) where previously determined wavelength spacing is made a base unit (col. 1, lines 40-42) in wavelength division multiplexing optical transmission (col. 2, lines 1-9) in which wavelength division multiplexed optical signal obtained by multiplexing (col. 2, lines 5-6) a plurality of signal lights of different wavelengths is transmitted over an optical transmission path (col. 2, line 6 and 2, fig. 1), the method comprising: setting the consecutive allocation wavelength number of signal lights to be allocated consecutively on said wavelength grids to different values according to wavelength bands (col. 2, lines 29-35, col. 3, lines 9-10, note that signal lights of different wavelengths are consecutively allocated in slots 3 and 4, shown in figs. 2, 3) based on wavelength dependence of a generation amount of four-wave mixed light on said optical transmission path (col. 2, lines 10-15, 20-25, 40-45); and consecutively allocating the

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signal lights on said wavelength grids in accordance with the set consecutive allocation wavelength number (col. 2, lines 25-27, 29-32 and 7, 8, 9, fig. 2 and 1, 2, 3, 4, fig. 3), but not allocating the signal light on at least one wavelength grid adjacent to the wavelength grids on which a group of signal lights is consecutively allocated (col. 2, lines 35-40). As to claim 9, Poti discloses a device (see abstract) which consecutively allocates signal lights on wavelength grids (consecutive allocations of different signal lights on respective wavelength grid slots 3 and 4, fig. 3) in accordance with the consecutive allocation wavelength number set to different values (the different wavelength number of each signal light in respective slot 3 and slot 4 of fig. 3) according to wavelength bands (col. 2, lines 30-33), but does not allocate the signal light on one wavelength grid adjacent to the wavelength grids on which signal lights are consecutively allocated (col. 1, lines 40-45, note that wavelength grid slot 2 that is adjacent to two consecutive wavelength grid slot 3 and slot 4 is vacant). As to claim 11, Poti discloses a wavelength allocation method usable for transmitting a multiplexed optical signal (col. 1, lines 63-67, col. 2, lines 1-9 and fig. 1), comprising: allocating consecutive wavelengths (allocation of consecutive wavelengths on slots 3 and 4 of fig. 3) of an equally spaced wavelength grid (col. 3, lines 9-10) to groups of signals (7, 8, 9, fig. 2) including different numbers of signals (col. 1, lines 67, col. 2, lines 1-2, each group can have signals of different wavelengths or signals of different number), each group including at least three signals (col. 2, lines 41-43 and fig. 3) and leaving at least one wavelength of the equally spaced wavelength grid unused between adjacent groups (col. 2, lines 45-46 and fig. 2), wherein all signals are multiplexed to be transmitted (col. 2, lines 4-7).

Regarding claim 2, Poti further discloses the consecutive allocation wavelength number is set to different values corresponding to the wavelength bands so that a four-wave mixing

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crosstalk calculated for each wavelength corresponding to the wavelength grids is equal to or less than a previously set tolerance value (col. 3, lines 15-20, 30-35, 43-45).

Regarding claim 5, Poti teaches when a plurality of upper level wavelength groups (col. 2, lines 29-37) for collectively processing the signal lights of a plurality of wavelengths in an optical node on said optical transmission path (col. 2, lines 1-9), is provided for said wavelength grids (col. 2, lines 28-30), for each signal band on which the signal lights are allocated in each of said upper level wavelength groups, the signal lights are allocated consecutively on the wavelength grids within said signal bands, in accordance with the consecutive allocation wavelength number determined based on the wavelength dependence of said generation amount of four-wave mixed light (col. 2, lines 20-35), but the signal light is not allocated on at least one wavelength grid adjacent to the wavelength grids on which said group of signal lights are allocated consecutively (col. 2, lines 35-43).

Regarding claim 7, Poti teaches the wavelength grid is equally spaced (col. 2, lines 28-30).

Regarding claim 8, Poti teaches the equal spacing is 25 GHz (col. 2, lines 20-23).

Regarding claim 10, Poti teaches the WDM signal light is transmitted via an optical transmission path (2, fig. 1).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Poti et al. (US Patent No: 7,039,270 B2) in view Grasso et al. (US Patent No: 5,943,151).

Regarding claim 6, Poti differs from the claimed invention in that Poti does not specifically disclose an optical node such an optical add/drop multiplexing node and an optical compensation node in the transmission system. However, it is well known to add add/drop multiplexer and compensation units along the transmission path of an optical network to selectively add and drop signals and to further compensate for distortion. For example, Grasso teaches an optical transmission system (90, 55, 80, fig. 5) by incorporating an optical add/drop multiplexer (58, fig. 5) and compensation unit (125, fig. 5). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate add/drop modules and a compensation unit such as the ones of Grasso in the transmission system of Poti in order to selectively add and drop optical signals and to further compensate for dispersion of the transmission path to further increase the transmission capacity and the transmission distance.

6. Claims 3-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Applicant's arguments filed 5/10/07 have been fully considered but they are not persuasive.

Remark states Poti does not anticipate "setting a consecutive allocation wavelength number of signal lights to be allocated consecutively on said wavelength grid, to different values

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according to wavelength bands, based on wavelength dependence of a generation amount of four-wave mixed light on said optical transmission path". However, Poti teaches such limitations. Poti teaches setting a consecutive allocation wavelength number (for example, slots 1, 2, 3, 4 of fig. 3 that each represents allocating a wavelength number in a group of three wavelengths, wherein signal wavelength on slots 3 and 4 are consecutively allocated) of signal lights that are allocated consecutively on a wavelength grid (col. 3, lines 9-10, note that signal lights of different wavelengths are consecutively allocated in slots 3 and 4, shown in figs. 2, 3, on a wavelength grid), to different values according to wavelength bands (each signal light is placed on a different slot number, such as slots 1, 2, 3, 4, and each signal light can have a different value or different wavelength in a wavelength band, see col. 1, lines 40-43, col. 2, line 1), based on wavelength dependence of a generation amount of four-wave mixed light on the optical transmission path (col. 2, lines 10-15 and FWM terms generated by three channel island, fig. 3). Remark further states in Poti each group has three signals, and in contrast claim 1 is directed to a method in which the consecutive allocation wavelength number is set to different values, such as 3 consecutive waves, 4 consecutive waves, etc. up to $n+1$ consecutive waves. Claim 1 as it is written now, does not specifically require 3, or 4, or $n+1$ consecutive waves. Claim 1 recites setting a consecutive allocation wavelength number of signal lights to be allocated consecutively on a wavelength grid, to different values according to wavelength bands. Poti also discloses setting a consecutive allocation wavelength number (col. 1, lines 40-42, col. 2, lines 30-32 and 7, 8, 9, fig. 2 and 1, 2, 3, 4, fig. 3) of signal lights to be allocated consecutively on a wavelength grid (col. 1, lines 40-42), to different values according to wavelength bands (col. 1, line 40, col. 2, line 1, signal light of different wavelength are consecutively allocated in

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slots 3 and 4, as it is shown in fig. 3). Remark further states Poti fails to disclose “consecutively allocating the signal lights on said wavelength grids with the set consecutive allocation wavelength number, but not allocating the signal light on at least one wavelength grid adjacent to the wavelength grids on which signal lights are consecutively allocated”. However, Poti also teaches such limitations. Poti teaches consecutively allocating signal light of different wavelength on equal space grid slots 3 and 4 (col. 3, lines 9-10 and fig. 3) with a set of consecutive allocation wavelength number (each wavelength at slots 3 and 4 can have a wavelength, or a wavelength number), and not allocating signal light on a grid adjacent to the wavelength grid slots 3 and 4 (col. 1, lines 40-45, note that wavelength grid slot 2 that is adjacent to the two consecutive wavelength grid slots 3 and 4 is vacant). As to “allocating consecutive wavelengths”, remark states the three wavelengths in each group are not assigned to consecutive wavelengths, and thus not all the wavelengths are consecutively used. However, consecutive wavelength allocations on respective slots 3 and 4 of each group, as it is shown in figs. 2 and 3, reads on the recited claim limitations. As to consecutively allocating the signal lights on the wavelength grids in accordance with the set consecutive allocation wavelength number, Poti discloses consecutively allocating signal lights in wavelength grid slots 3 and 4, in accordance with a set of consecutive wavelength number for each respective signal light. Applicant’s attention is directed that during the prosecution of a pending patent application, the terms found in the claims should be given the broadest reasonable interpretation, See *In re Pearson*, 181 USPQ 641 (CCPA 1974).

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on 9 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


M. R. SEDIGHIAN
PRIMARY EXAMINER